

**ASPECTS OF ECOLOGY OF
SRI LANKA YELLOW-EARED BULBUL
(*Pycnonotus penicillatus*) IN
HORTON PLAINS NATIONAL PARK**

By

Poddiwela Hewage Sahani Prabha Chandrasiri

**Thesis submitted to the University of Sri Jayewardenepura
for the award of the Degree of Doctor of Philosophy on 2019**

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DECLARATRION

“The work described in this thesis was carried out by me under the supervision of Prof. (Mrs.) W. A. D. Mahaulpatha, Senior Lecturer, Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda and a report on this has not been submitted in whole or in part to any University or any other institution for any other Degree/ Diploma.”

19.08.2019

Date



Signature

I certify that the candidate has incorporated all corrections, amendments and additions recommended by the examiners.

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DEDICATION

FOR MY FAMILY & WILDLIFE CIRCLE

CONTENTS

	Page
LIST OF TABLES	XII
LIST OF FIGURES	XV
LIST OF PLATES	XVIII
ABBREVIATIONS	XX
ACKNOWLEDGEMENT	XXII
ABSTRACT	XXV
1.0 INTRODUCTION	
1.1 Ecological Studies	1
1.1.1 Population distribution and habitat utilization of birds	1
1.1.2 Behavioural study of birds	2
1.1.3 Biometric measurements of birds	2
1.1.4 Foraging ecology of birds	3
1.1.5 Breeding ecology of birds	4
1.1.6 Interactions in mixed-species feeding flocks	4

1.2 Sri Lanka Yellow-eared Bulbul (<i>Pycnonotus penicillatus</i> Blyth, 1851)	5
1.2.1 External morphology of Sri Lanka Yellow-eared Bulbul	5
1.2.2 Taxonomy of Sri Lanka Yellow-eared Bulbul	7
1.2.3 Assessment information of Sri Lanka Yellow-eared Bulbul	7
1.2.3.1 IUCN Red List assessments information of Sri Lanka Yellow-eared Bulbul	7
1.2.3.2 National conservation status of Sri Lanka Yellow-eared Bulbul	8
1.2.4 Endemism of Sri Lanka Yellow-eared Bulbul	8
1.2.5 Distribution and habitats of Sri Lanka Yellow-eared Bulbul	9
1.2.6 Diet of Sri Lanka Yellow-eared Bulbul	10
1.2.7 Breeding seasons of Sri Lanka Yellow-eared Bulbul	10
1.2.8 Nest site characters of Sri Lanka Yellow-eared Bulbul	10
1.2.9 Characteristics of the eggs of Sri Lanka Yellow-eared Bulbul	11
1.3 Introduction of Horton Plains National Park	11
1.4 The research gap of ecological studies of birds	12
1.5 The objectives of the study	13

2.0 LITERATURE REVIEW

2.1 Geography of Sri Lanka	14
2.2 Biodiversity of Sri Lanka	14
2.3 Temperature of Sri Lanka	16
2.4 Rainfall of Sri Lanka	16
2.5 Climate seasons of Sri Lanka	17
2.6 Climatic zones of Sri Lanka	17
2.7 Bioclimatic zones of Sri Lanka	19
2.8 Floristic regions of Sri Lanka	20
2.9 Topography of Sri Lanka	21
2.10 Habitat degradation in Sri Lanka	22
2.11 Introduction of avifauna in Sri Lanka	23
2.12 Avifaunal zones of Sri Lanka	23
2.13 History of ornithological explorations	25
2.14 Recent ecological studies of endemic avifauna in Sri Lanka	26
2.15 Recent ecological studies of bulbuls in Sri Lanka	29
2.16 Bulbuls in the world	30
2.17 Bulbuls in the South Asia	31
2.18 Family: Pycnonotidae in Sri Lanka	32
2.19 Significance to humans	33
2.20 Protected areas in Sri Lanka	34
2.21 Horton Plains National Park	38

2.22	Habitats of Horton Plains National Park	38
2.22.1	Cloud Forest habitat	41
2.22.2	Cloud Forest Die-back habitat	43
2.22.3	Grassland habitat	45
2.23	History of Horton Plains National Park	48
2.24	Tropical montane cloud forests in Sri Lanka	50
2.25	Climate of Horton Plains National Park	50
2.26	Ornithology value of Horton Plains National Park	51
2.27	Previous surveys carried out at Horton Plains National Park	52
3.0	MATERIALS AND METHODS	53
3.1	Study area	
3.1.1	Selection of the habitats	54
3.1.2	Study period	55
3.2	Population study	55
3.2.1	Habitat variables	56
3.2.2	Environmental variables	58
3.2.3	Climate Seasons of Sri Lanka	59
3.2.4	Seasonal variation of environmental variables	59
3.3	Behavioural study of <i>P. penicillatus</i>	61
3.3.1	Construction of a descriptive ethogram	61
3.3.2	Diurnal behavioural variations	61
3.4	Biometric measurements	63
3.4.1	Capturing the birds	63

3.4.2	Biometric Measurements of <i>P. penicillatus</i>	63
3.5	Foraging Ecology	65
3.5.1	Searching behaviour	65
3.5.2	Attack behaviour	65
3.5.2.1	Near-perch manoeuvres	66
3.5.2.2	Aerial manoeuvres	66
3.5.3	Foraging site	66
3.5.4	Diet composition of <i>P. penicillatus</i>	67
3.5.5	Fruit availability	69
3.5.6	Invertebrate abundance	69
3.6	Breeding ecology	
3.6.1	Breeding season	71
3.6.2	Nest location	71
3.6.3	Nest monitoring	71
3.6.4	Characteristics of the nests of <i>P. penicillatus</i>	72
3.6.4.1	Nest-site characteristics	72
3.6.4.2	The vegetation structure	72
3.6.4.3	Physical variables around the nest sites	73
3.6.4.4	The nest-size parameters	73
3.6.4.5	Nest construction materials of <i>P. penicillatus</i>	74
3.6.5	Incubation patterns of <i>P. penicillatus</i>	74
3.6.6	Patterns of parental care of <i>P. penicillatus</i>	74
3.6.7	Nestling diet	75
3.7	Interactions in mixed-species feeding flocks	76

3.7.1	Occurrence of <i>P. penicillatus</i> in the mixed-species feeding flocks	76
3.7.2	Composition of mixed-species feeding flocks	76
3.7.3	Vertical and horizontal distribution of mixed-species feeding flocks	76
3.7.4	Feeding interactions of <i>P. penicillatus</i>	77
3.7.5	Usage of foraging substrates of <i>P. penicillatus</i> in the mixed-species feeding flocks	77
3.7.6	Foraging methods of <i>P. penicillatus</i> in the mixed-species feeding flocks	78
3.7.7	Roles of the birds in mixed-species feeding flocks	78
3.7.8	Crossing score of the individuals	78
3.8	Data analysis	79
3.8.1	Statistical analysis	79
3.8.2	Population study of <i>P. penicillatus</i>	79
3.8.3	Behavioural study of <i>P. penicillatus</i>	81
3.8.4	Biometric measurements of <i>P. penicillatus</i>	81
3.8.5	Breeding ecology of <i>P. penicillatus</i>	81
3.8.6	Interactions of <i>P. penicillatus</i> in mixed-species feeding flocks	82
4.0	RESULTS	
4.1	Population study	85
4.1.1	Habitat preference of <i>P. penicillatus</i>	85
4.1.2	Population density of <i>P. penicillatus</i>	86

4.1.3	Population size of <i>P. penicillatus</i>	89
4.1.4	Seasonal variation of population density <i>P. penicillatus</i> in different habitats	90
4.1.5	Habitat variables within different habitats at HPNP	92
4.1.6	Environmental variables within different habitats at HPNP	94
4.1.7	Principal component analysis of habitat variables and environmental variables	95
4.1.8	Correlation of population density with habitat and environmental variables	97
4.1.9	Seasonal variation of weather parameters at HPNP	98
4.1.10	Correlation of population density with weather parameters	99
4.1.11	Relative abundance of <i>P. penicillatus</i>	100
4.2	Behavioural study of <i>P. penicillatus</i>	103
4.2.1	Time Allocation for different behaviour types of <i>P.</i> <i>penicillatus</i>	103
4.2.2	Diurnal behavioural variations of <i>P. penicillatus</i> in different habitats	104
4.2.3	Diurnal behavioural variations of <i>P. penicillatus</i> in different time periods	105
4.2.4	Diurnal behavioural variations of <i>P. penicillatus</i> in different climate seasons	106
4.3	Biometric measurements of <i>P. penicillatus</i>	108

4.4 Foraging ecology of *P. penicillatus*

4.4.1	Searching behaviour of <i>P. penicillatus</i>	110
4.4.2	Attack methods of <i>P. penicillatus</i>	111
4.4.3	Vertical foraging positions of <i>P. penicillatus</i>	112
4.4.4	Horizontal foraging position at the foliage	113
4.4.5	Foliage density of the foraging plants of <i>P. penicillatus</i>	114
4.4.6	Foraging substrate	115
4.4.7	Feeding attempts of <i>P. penicillatus</i>	118
4.4.8	Plant species observed from faecal sample analysis	122
4.4.9	Food preference of <i>P. penicillatus</i> in the breeding season and non-breeding season	123
4.4.9.1	Plant Food Preference of <i>P. penicillatus</i> in the breeding season and non-breeding season	123
4.4.9.2	Animal Food Preference of <i>P. penicillatus</i> in the breeding season and non-breeding season	124
4.4.10	Fruit availability	125
4.4.10.1	Seasonal variation of fruit cover % of different plant species	125
4.4.10.2	Seasonal variation of trees in fruiting of different plant species	125
4.4.11	Invertebrate abundance	128

4.5 Breeding ecology

4.5.1	Breeding season of <i>P. penicillatus</i> at HPNP	133
4.5.2	Nest location	134

4.5.3	Nest monitoring	136
4.5.3.1	Causes for the nest failures of <i>P. penicillatus</i>	136
4.5.4	Characteristics of the nests of <i>P. penicillatus</i>	
4.5.4.1	Nest-site characteristics	137
4.5.4.2	Physical variables around the nest sites	141
4.5.4.3	The nest-size parameters	142
4.5.4.4	Nest construction materials	143
4.5.5	Incubation patterns of <i>P. penicillatus</i>	149
4.5.5.1	Incubation Patterns of <i>P. penicillatus</i> in different time periods of the day	149
4.5.5.2	Incubation patterns of <i>P. penicillatus</i> in different stages of the period	150
4.5.6	Patterns of parental care of <i>P. penicillatus</i>	152
4.5.6.1	Patterns of parental care of <i>P. penicillatus</i> in different time periods of the day	152
4.5.6.2	Patterns of parental care of <i>P. penicillatus</i> in different stages of period	153
4.5.7	Nestling diet	155
4.6 Interactions in mixed-species feeding flocks		
4.6.1	Species composition of the mixed-species feeding flocks	157
4.6.2	Flocking propensity	161
4.6.3	Number of flocks and total number of individuals of <i>P.</i> <i>penicillatus</i> in the mixed-species feeding flocks	162

4.6.4	Correlation of important factors of mixed-species feeding flocks	163
4.6.4.1	Correlation between number of species and total no of individuals in the flock	163
4.6.4.2	Correlation between total no of individuals and number of <i>P. penicillatus</i> in the flock	164
4.6.5	Foraging height distribution of <i>P. penicillatus</i> in the mixed-species feeding flocks	165
4.6.6	Usage of foraging substrates of <i>P. penicillatus</i> in the mixed-species feeding flocks	166
4.6.7	Foraging methods of <i>P. penicillatus</i> in the mixed-species feeding flocks	167
4.6.8	Niche breadth of <i>P. penicillatus</i>	168
4.6.9	Vertical and horizontal distribution of species in the mixed-species feeding flocks	169
4.6.10	Association of the species in the mixed-species feeding flocks	171
4.6.10.1	Cole's coefficient of other species present with <i>P. penicillatus</i> , at mixed-species feeding flocks	171
4.6.10.2	Dendrogram of linkages of mixed-species feeding flocks	173
4.6.11	Crossing Scores of the individuals	174

5.0	DISCUSSION	
5.1	Population study of <i>P. penicillatus</i>	175
5.2	Behavioural study of <i>P. penicillatus</i>	178
5.3	Biometric measurements of <i>P. penicillatus</i>	179
5.4	Foraging ecology of <i>P. penicillatus</i>	181
5.5	Breeding ecology of <i>P. penicillatus</i>	185
5.6	Interactions of <i>P. penicillatus</i> in mixed-species feeding flocks	189
5.7	Management implications and Recommendations for conservation of <i>P. penicillatus</i>	195
6.0	CONCLUSIONS	198
	REFERENCES	
	APPENDICES	

LIST OF TABLES

Table no	Title	Page
1.	Taxonomy of Sri Lanka Yellow-eared Bulbul	7
2.	Previously published red list assessments in Sri Lanka	8
3.	Recent ecological studies of endemic avifauna	28
4.	Conservation status of Family Pycnonotidae in the world	31
5.	A description of the Family: Pycnonotidae in Sri Lanka	32
6.	Protected areas administrated by the Forest Department and Department of Wildlife Conservation	35
7.	Population density of <i>P. penicillatus</i> in different habitats	89
8.	Population size of <i>P. penicillatus</i> in different habitats	89
9.	Seasonal variation of population density <i>P. penicillatus</i> in different habitats	91
10.	Habitat variables within different habitats at HPNP	92
11.	Environmental variables within different habitats at HPNP	94
12.	Eigen analysis of the correlation matrix	96
13.	Factor loadings on the first three principal component (PC) axes on the seven variables used to distinguish habitats	96
14.	Pearson correlation coefficient of population density with habitat and environmental variables	97
15.	Seasonal variation of weather parameters at HPNP	98
16.	Seasonal variation of median cloud cover at HPNP	98

17.	Spearman rank correlation coefficient of population density with weather parameters	99
18.	Diurnal behavioural variations of <i>P. penicillatus</i> in different time periods	105
19.	Seasonal variations of diurnal behaviour of <i>P. penicillatus</i>	107
20.	Linear discriminant function for groups	109
21.	A description of feeding plant species of <i>P. penicillatus</i>	116
22.	Comparison of the nest-site characteristics	138
23.	Eigen analysis of the correlation matrix	139
24.	Factor loadings on the first four principal component (PC) axes on the seven variables used to distinguish habitat	140
25.	Physical variables around the nest sites	141
26.	Nest characteristics of <i>P. penicillatus</i>	142
27.	Nest construction materials used by <i>P. penicillatus</i>	144
28.	Incubation patterns of <i>P. penicillatus</i> in different time periods of the day	149
29.	Incubation patterns of <i>P. penicillatus</i> in different stages of period	150
30.	Patterns of parental care of <i>P. penicillatus</i> in different time periods of the day	152
31.	Patterns of parental care of <i>P. penicillatus</i> in different stages of period	153
32.	Variation of diets of <i>P. penicillatus</i> in the nestling stage & fledgeling stage	155
33.	Species composition of the mixed-species feeding flocks	159

34. Cole's coefficient of other species present with *P. penicillatus*, at 171
Mixed-Species Feeding Flocks

LIST OF FIGURES

Figure no	Title	Page
1.	Distribution map of the Yellow-eared Bulbul in Sri Lanka	9
2.	The biodiversity hotspots in the world	15
3.	Climatic zones (dry, intermediate and wet zones) of Sri Lanka	18
4.	Bioclimatic zones of Sri Lanka	19
5.	Distribution of natural forests in different floristic regions of Sri Lanka	20
6.	Forest Cover in Sri Lanka 2010	22
7.	Avifaunal Zones of Sri Lanka	24
8.	Distribution map of Family Pycnonotidae	30
9.	Protected Areas under the Department of Wildlife Conservation in Sri Lanka	37
10.	Geographical setting of the Horton Plain national park	40
11.	Road and Irrigation map of Horton Plains National Park	41
12.	Important Bird Areas of Horton plains / Ohiya / Pattipola-Ambewela.	51
13.	Vegetation map of Horton Plains National Park	53
14.	Schematic diagram of nest-size parameters of a cup nest	73
15.	Habitat Preference of <i>P. penicillatus</i>	86
16.	Monthly population density of <i>P. penicillatus</i>	88
17.	Scatter plot using principal component analysis (PCA)	95

18.	Relative Abundance of Cloud Forest habitat	100
19.	Relative Abundance of Cloud Forest Die-back habitat	101
20.	Relative Abundance of Grassland habitat	102
21.	Time allocation for different behaviour types of <i>P. penicillatus</i>	103
22.	Diurnal behavioural variations of <i>P. penicillatus</i> in different habitats	104
23.	The dotplots of Tail length, Ear coverts & Head width	108
24.	Foraging site movements of <i>P. penicillatus</i>	110
25.	Attack methods of <i>P. penicillatus</i>	111
26.	Vertical foraging positions of <i>P. penicillatus</i>	112
27.	Horizontal foraging position at the foliage	113
28.	Foliage density of the foraging plants of <i>P. penicillatus</i>	114
29.	Feeding attempts of <i>P. penicillatus</i>	118
30.	Plant species observed from faecal sample analysis	122
31.	Plant Food Preference of <i>P. penicillatus</i> in the Breeding season and Non-breeding season	123
32.	Animal Food Preference in the Breeding season and Non-breeding season	124
33.	Seasonal variation of fruit cover % of different plant species	126
34.	Seasonal variation of trees in fruiting of different plant species	127
35.	Invertebrate Abundance at the ground	128
36.	Invertebrate Abundance under the moss covered barks	130
37.	Invertebrate Abundance on the foliage	131

38.	Abundance of Aerial Insects	132
39.	Status of the nests in the different habitats	135
40.	Causes for the nest failures of <i>P. penicillatus</i>	136
41.	Nest orientation of <i>P. penicillatus</i> in the nesting trees	141
42.	Nest construction materials of <i>P. penicillatus</i>	143
43.	Flocking propensity <i>P. penicillatus</i> in the mixed-species feeding flocks	161
44.	Number of flocks and total number of individuals of <i>P. penicillatus</i> in the mixed-species feeding flocks	162
45.	Spearman rank correlation between Number of species and total no of individuals in the flocks	163
46.	Spearman Rank Correlation between Total no of individuals and number of <i>P. penicillatus</i> in the mixed-species feeding flocks	164
47.	Foraging height distribution of <i>P. penicillatus</i> in the mixed-species feeding flocks	165
48.	Foraging substrates of <i>P. penicillatus</i> in the mixed-species feeding flocks	166
49.	Foraging methods of <i>P. penicillatus</i> in the mixed-species feeding flocks	167
50.	Niche Breadth of <i>P. penicillatus</i> at mixed-species feeding flocks	168
51.	Vertical Distribution of species in the mixed-species feeding flocks	169
52.	Horizontal Distribution of species in the mixed-species feeding flocks	170
53.	Dendrogram of linkages of MSFFs at the HPNP	173
54.	Crossing Scores of the Individuals	174

LIST OF PLATES

Photo credit was given with the photograph. Other photographs were taken by the author.

Plate no	Title	Page
1.	Adult Sri Lanka Yellow-eared Bulbul (<i>P. penicillatus</i>)	6
2.	The canopies of the cloud forest habitat of Horton Plains National Park	42
3.	Inside structure of the cloud forest habitat	43
4.	The cloud forest die-back habitat of Horton Plains National Park	44
5.	Inside of the cloud forest die-back habitat	45
6.	The dwarf bamboo habitat of Horton Plains National Park	46
7.	The tussock grass habitat of Horton Plains National Park	47
8.	The carpet grass habitat of Horton Plains National Park	48
9.	<i>P. penicillatus</i> feeding on a <i>P. tripartita</i> fruit	119
10.	<i>P. penicillatus</i> is feeding on a <i>C. fasciculatum</i> fruit	119
11.	<i>P. penicillatus</i> is feeding on a <i>R. ellipticus</i> fruit	120
12.	<i>P. penicillatus</i> is feeding on a <i>S. mauritinum</i> fruit	120
13.	<i>P. penicillatus</i> is feeding on a coleopteran larva	121
14.	<i>P. penicillatus</i> take away a fruit of <i>S. rotundifolium</i>	121
15.	Breeding couple of <i>P. penicillatus</i>	133
16.	Female displays courtship behaviour	134
17.	Lower view of the nest	146
18.	Inside view of the nest	146
19.	A destructed nest due to predation of Jungle Crow: broken egg shells and shred feathers were scattered around the nest	147

20.	Broken egg shells of <i>P. penicillatus</i> observed at a nest attacked by a Jungle Crow	147
21.	Nest building individual carrying a leaf to the nesting site	148
22.	Incubating <i>P. penicillatus</i>	151
23.	Eggs of <i>P. penicillatus</i>	151
24.	A five days old nestling of <i>P. penicillatus</i>	153
25.	Fledgelings of <i>P. penicillatus</i>	154
26.	A juvenile of <i>P. penicillatus</i>	154

ABBREVIATIONS

- ANOVA - Analysis of variance
- BP - Before present
- CF - Cloud forest habitat
- CFD - Cloud forest die-back habitat
- CI - Confidence interval
- CR - Critically endangered
- DBH - Diameter at breast height
- DF - Degrees of freedom
- DFA - Discriminant function analysis
- DWC - Department of wildlife conservation
- EN – Endangered
- FIMS - First inter monsoon season
- GL - Grassland habitat
- GPS - Global positioning system
- HPNP - Horton Plains National Park
- IBA - Important Bird Areas
- IR – Infrared
- IUCN - International union for conservation of nature
- MSFF - Mixed-species feeding flock
- NEMS - North east monsoon season
- PCA - Principal components analysis
- RH - Relative humidity

SD - Standard deviation

SIMS - Second inter monsoon season

SWMS - South west monsoon season

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ASPECTS OF ECOLOGY OF
SRI LANKA YELLOW-EARED BULBUL (*Pycnonotus penicillatus*)
IN HORTON PLAINS NATIONAL PARK
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ABSTRACT

Aspects of the ecology of Sri Lanka Yellow-eared Bulbul (*Pycnonotus penicillatus*) was studied in the Horton Plains National Park (HPNP) situated in the Nuwara Eliya District of Central Province from September 2015 to August 2018. Population density, distribution and habitat utilization, behavioural study, biometric measurements, aspects associated with foraging ecology and breeding ecology and interactions with the mixed-species feeding flocks (MSFF) were studied. Three main habitats were selected as cloud forest habitat (CF), cloud forest dieback habitat (CFD) and grassland habitat (GL). Population density was higher in the CF and CFD habitats and lowest at GL habitat. The population density was significantly positively correlated with the canopy cover and shrub cover however, significantly negatively correlated with wind speed. *P. penicillatus* was recorded as the second abundant species in the cloud forest habitat and cloud forest die-back habitat respectively. *P. penicillatus* spent their maximum time allocation for locomotion behaviour. They used CF and CFD habitats for most of their behaviours and GL habitat was used only for locomotion and foraging. There were significant variations of biometric measurements between both sexes. After discriminant function analysis tail length, ear coverts & head width was used to determine gender of *P. penicillatus*. Male

female ratio at HPNP is 1:1. *P. penicillatus* exploited a range of vascular plants as foraging plants. They utilized sixteen species of feeding plants belonging to ten families. They had a wide range of fruit selection from berries to larger passion fruits. Both plant food and animal food consumption increased in the breeding season since the high energy consumption for breeding activities. Successful nests were recorded only from cloud forest habitat. There were threats from jungle crow, human disturbance and natural causes. They preferred *Berberis ceylanica*: a thorny bush to construct the nests. DBH, number of branches divided, visual estimate of the foliage covers and distance to water, were the most important factors that affected the selection of nesting sites. *P. penicillatus* was participated in majority of MSFFs. Flocking propensity of *P. penicillatus* was 36 % of the MSFFs at HPNP. *P. penicillatus* was a core species of MSFFs. Specialization was lower in usage of foraging height and foraging substrate. Specialization was highest in foraging method. Great Tit, Dark-fronted Babbler and Pale Billed Flower pecker are the closely related species with *P. penicillatus*. Protection of breeding and feeding habitat is the best method to warrant the protection of *P. penicillatus*.

Key words: *Pycnonotus penicillatus*, Ecology, Endemic, Horton Plains National Park, Tropical Montane Cloud Forest, Sri Lanka